DOCUMENT RESUME

ED 219 629 CE 033 376

AUTHOR	Owens, Thomas R.
TITLE	Montana Vocational Education Study.
INSTITUTION	Northwest Regional Educational Lab., Portland, Oreg.
SPONS AGENCY	Montana State Advisory Council for Vocational Education, Helena.; Montana State Dept. of Public Instruction, Helena.
PUB DATE	Dec 80
NOTE	89p.
EDRS PRICE	MF01/PC04 Plus Postage.
DESCRIPTORS	Attitudes; Educational Needs; Employee Attitudes; *Employer Attitudes; Graduates; Graduate Surveys; *Outcomes of Education; *Participant Satisfaction; Postsecondary Education; *Program Effectiveness; Secondary Education; Student Attitudes; *Vocational Education; Vocational Followup
IDENTIFIERS	*Montana

ABSTRACT

A survey of a sample of employers, high school vocational education completers, and postsecondary vocational education completers was taken to determine their perceptions of the current delivery system, student outcomes from vocational training, and the extent to which vocational education was meeting the labor market needs of the state of Montana. A mailed questionnaire was sent to a representative sample of 356 employers (28 percent return rate); telephone interviews were conducted with nine employers, surveys were mailed to 542 high school vocational education completers from the class of 1976, (31 percent returned); and to 587 completers of five postsecondary vocational technical education programs (28 percent returned). The employers were asked how they felt about the preparation of the vocational completers they had hired, and the completers were asked how their preparation had fitted them for their jobs, among other questions. Findings from the survey reflect a generally favorable picture of the status of vocational education in Montana. For example, 90 percent of the high school and 95 percent of the postsecondary vocational education completers expressed satisfaction with the vocational training they had received. Of those employers responding to the question, 74 percent indicated that they would prefer hiring a person from the high school vocational education program and 84 percent indicated the same for postsecondary vocational education completers. It was suggested that further study be given to areas of need found by the survey: additional training of workers, especially management and medically-related training. (KC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED219629

MONTANA VOCATIONAL EDUCATION STUDY

Prepared for

The Montana State Advisory Council
for Vocational Education

and

The Superintendent of Public Instruction

by

Thomas R. Owens, Ph D.
Education and Work Program
Northwest Regional Educational Laboratory
710 Southwest Second Avenue
Portland, Oregon 97204

CE033376

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

✓ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

M ROGERS

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

December 1980

TABLE OF CONTENTS

		Page
	LIST OF TABLES	v
	ACKNOWLEDGMENTS	vii
I.	INTRODUCTION	1
	Background and Purposes of the Study	1
	Organization of the Report	2
	General Plan of the Study	3
	Employers	4
	High School Vocational Education Completers	6
	Postsecondary Vocational Education Completers	7
	Instrument Development	8
	Reliability of Instruments	10
	Data Gathering Procedures	11
	Data Analysis Procedures	12
II.	HIGH SCHOOL FINDINGS	15
	Total Group Findings	15
	Findings by Special Categories	19
	Findings by Relationship of High School Training to Current Occupation	22
III.	POSTSECONDARY FINDINGS	25
	Total Group Findings	25
	Findings by Special Categories	32
IV.	EMPLOYER/SUPERVISOR FINDINGS	37
	Total Group Findings	37
	Findings by Special Categories	44
	Interview Findings	46
V.	GENERAL PATTERNS	51
VI.	CONCLUSIONS AND RECOMMENDATIONS	55
	APPENDICES	
	High School Vocational Education Survey	A-1
	Postsecondary Vocational Education Survey	B-1
	Employer Survey	C-1

LIST OF TABLES

Page

1. Number of Companies Participating in the Vocational Education Study 5

2. High Schools Participating in the Vocational Education Study 7

3. Postsecondary Voc-Tech Centers Participating in the Vocational Education Study 8

4. Respondents' Ratings of Satisfaction With Various Aspects of Their High School Vocational Education 17

5. Respondents' Ratings of How Well They Felt Prepared as a Result of Their High School Vocational Training 18

6. Respondents' Ratings of Satisfaction With Various Aspects of Their High School Vocational Education Program 20

7. Respondents' Rating of How Well They Felt Prepared as a Result of Their High School Vocational Training 21

8. Respondents' Ratings of Satisfaction With Various Aspects of Their Postsecondary Vocational Education 28

9. Respondents' Ratings of How Well They Felt Prepared as a Result of Their Postsecondary Vocational Training 29

10. Areas in Which Postsecondary Vocational Students Desire Additional Training. 31

11. Respondents' Ratings of How Well They Felt Prepared as a Result of Their Postsecondary Vocational Education Training 34

12. Respondents' Ratings of Satisfaction With Various Aspects of Their Postsecondary Vocational Education Training. 35

13. Perceived Areas of Oversupply or Shortage of Trained High School or Postsecondary Vocational Completers. 39

14. Employer Recommendations for Improving High School Vocational Education. 42

15. Employer Recommendations for Improving Postsecondary Vocational Education. 43

16. Postsecondary Ratings by Employers 48

17. Employer Ratings of Postsecondary Vocation Training Student Outcomes 49

ACKNOWLEDGMENTS

Success in completing this vocational education study for the Montana State Advisory Council for Vocational Education and the Superintendent of Public Instruction was due to the outstanding cooperation of many people. The author wishes to express particular thanks to Mr. William Ball, Executive Director of the Montana State Advisory Council for Vocational Education, for help in coordinating the planning and implementation of the study. Dr. Larry Key, Director of Vocational Education, and Dr. Larry Johnson, Director of Postsecondary Vocational Education, were helpful in sharing available data about vocational education within Montana and in constructing the sampling design of high school and postsecondary vocational education completers. Mr. "Buck" Boles, Director of the Montana Chamber of Commerce, and Mr. Odeen Johnson, Director of Membership for the Chamber, provided us with a list of their members from which we sampled for the employer survey. Mr. Robert Rafferty, Supervisor, Research and Analysis Section, Employment Security Division, was helpful in identifying the 20 firms in Montana with the largest number of employees.

Mr. Tom Olson of NWREL conducted several meetings with the Advisory Council to help them assess their information needs. Mr. Larry Picus conducted telephone interviews with a sample of Montana employers while Mr. John Babatunde conducted extensive analysis of the questionnaire data. This report was typed by Ann Rolander and edited by Nancy Carter.

Appreciation is also extended to the principals and secretaries in the six high schools and the five vocational-technical schools who provided the addresses of 1976 vocational education completers.

SECTION I

INTRODUCTION

Background and Purpose of the Study

In November, 1979, Mr. Tom Olson, Mr. Larry Picus and Dr. Tom Owens of the Northwest Regional Educational Laboratory (NWREL) met with the Executive Committee and later with the full membership of the Montana State Advisory Council for Vocational Education to discuss with them the needs of their Council and ways in which NWREL might assist them. Discussions with the State Advisory Council led to recommendations that NWREL produce a written description of vocational education as it currently exists in Montana and that NWREL assist the Council in developing a statement of purposes of vocational education in Montana. These two activities were carried out and led to a decision by the Council and the Superintendent of Public Instruction to contract with NWREL to conduct a survey of a sample of employers, high school vocational education completers and postsecondary vocational education completers about their perceptions of the current delivery system, student outcomes from vocational training and the extent to which vocational education was meeting the labor market needs of Montana.

During several additional meetings with the State Advisory Council, NWREL staff proposed a range of questions that could be addressed in these surveys and solicited input from the Council. An extended draft instrument was prepared and Council members were asked to rank each item in terms of its importance to the Council for their future decision making. These processes helped to insure that the survey

instruments would meet the critical information needs of the Council. Based on this input, revised evaluation instruments were prepared by NWREL and reviewed by the Executive Committee.

The primary purposes of the study were to obtain information from employers throughout the state and from high school and postsecondary vocational education completers that would reflect the current strengths and weaknesses of vocational education in Montana and identify areas where improvements could be made. It was recognized by NWREL and the Advisory Council that this study was only one part of a more comprehensive effort by the Council and Superintendent of Public Instruction to study vocational education in Montana. Long-term plans may call for an in-depth analysis of existing labor market supply and demand data in Montana, assessment of the impact of long-term trends affecting future employment, and the development and implementation of a long-term supply and demand study.

Organization of the Report

This report is organized into six sections and three appendices, together with an Executive Summary. In this Introduction Section the reader is provided with the background and purposes of the study and is given a summary of the plan for designing, collecting and analyzing data. Section II presents the vocational education findings for the total group of high school completers and for special categories of completers, while Section III accomplishes the same thing for completers of postsecondary vocational education programs. The procedures and findings from mail surveys and personal interviews with employers are discussed in Section

IV. A look at patterns emerging across responses from high school completers, postsecondary completers and employers is presented in Section V, while conclusions and recommendations are found in Section VI. Three appendices are included that show the tabulation of responses to the high school, postsecondary and employer surveys.

General Plan of the Study

The general plan of the study called for NWREL to work closely with members of the Advisory Council in the design of the study, development of instruments and conduct of the surveys to the end that information produced would best meet their information needs. To accomplish this required frequent contact with Bill Ball, the Advisory Council members and representatives from the Superintendent of Public Instruction's office.

The overall plan of the study called for telephone interviews with a sample of employers and a mailed questionnaire to be sent to a sample of employers in Montana, to a sample of 1976 high school vocational education completers and to a sample of 1976 postsecondary vocational education completers. The class of 1976 was selected because those young people had been out of school long enough to get into regular careers or further education and would have had enough taste of the adult world to determine how well their vocational training prepared them. At the same time, they would not have been out of their vocational training programs for so many years that the delivery strategies they would be assessing would have changed drastically since their participation. The specific ways that each sample was selected are described in the following section of this introduction.

Employers

The decision as to which employers in Montana to survey was not a simple one. Asche and Vogler, in their recent publication,[1] review the theoretical and methodological problems involved in various approaches to selecting a sample of employers to survey. If a random sample is used, for example, some employers would not have had contact with vocational education graduates and would probably not return the questionnaire or be knowledgeable enough to complete it. Asking only those employers who have employed vocational education graduates, on the other hand, is likely to give a positively biased perception of employers' views. For the present study, we used three strategies for selecting employers: (1) a random sample of employers listed on the mailing list of the Montana Chamber of Commerce, (2) a list of the largest 20 employers in Montana and (3) a list of six employers each from the Voc-Tech Centers based on those companies that hire the largest number of voc-tech completers.

Each of these methods was used to complement the limitations of only one approach. For example, the Chamber of Commerce list, although broadly representative of a number of occupations and companies, has an underrepresentation of government and hospital workers. The list of companies supplied by the Voc-Tech Centers insured that we would be reaching some of the key agencies that employ vocational education completers. Finally, the list of the 20 largest employers helped to insure that we did not overlook firms that hire many employees simply by the fact that they were not drawn randomly from the Chamber list.

[1]Asche, F.M. and Vogler, D.E. Assessing Employer Satisfaction with Vocational Education Graduates. Columbus, Ohio: The National Center for Research in Vocational Education, 1980.

For those 326 organizations that were randomly sampled from over 1200 on the Montana Chamber of Commerce list, a cover letter, composed by NWREL and signed by "Buck" Boles, Director of the Chamber, accompanied the surveys, explained the study's importance and requested that two people in larger agencies complete them--a personnel officer and an online supervisor. Procedures for selecting the online supervisor to complete the survey were discussed in the cover letter. Stamped, return-address envelopes were included so that completed responses would be returned directly to Dr. Owens at NWREL. A similar cover letter from NWREL accompanied surveys to non-Chamber companies.

The number of companies selected for participation in this study is shown in Table 1 together with the number of companies returning completed surveys after the initial and the followup mailings. As can be seen, the response rate for companies selected, because of their employing postsecondary vocational education completers, was twice as high as for a random sample of companies in Montana. Since two survey questionnaires were mailed to each company, the responses received came from a total of 139 employers or supervisors.

TABLE 1

NUMBER OF COMPANIES PARTICIPATING IN THE VOCATIONAL EDUCATION STUDY

	Number of Surveys Mailed	Number Completed After 1st Reminder	Number Completed After 2nd Reminder	Total Number Returned	Response Rate
Chamber of Commerce and Twenty Largest Companies	326	64	22	86	24%
Voc-Tech Referred List	30	8	7	15	50

In addition to the mailed survey, telephone interviews were conducted with employers in nine Montana agencies in order to allow for a more in-depth expression of views about vocational education. These agencies were selected to represent a balance of factors which included number of employees, geographic location, past hiring of voc-tech completers and type of service or product delivered. Responses were drawn primarily from administrative level managers and online supervisors within each organization.

High School Vocational Education Completers

After several discussions with Bill Ball and a meeting with Larry Key and Larry Johnson of the Vocational Education Department, a sampling frame for selecting high school vocational education completers was prepared. The sampling basis divided the state's schools into those with large and small enrollments and into three regions of the state: east, central and west. One large high school (over 1600 enrollment) and one smaller high school (under 600 enrollment) were randomly selected for each of the three regions. The high schools selected were: Billings West, Wolf Point, Great Falls, Three Forks, Beaverhead and Hellgate. A letter was sent to the principal at each of the small high schools requesting that the school secretary supply NWREL with the names and addresses of each 1976 vocational education completer. For the large high schools, the principal was asked to gather the names and addresses of the first 132 students who completed vocational education in 1976. The secretaries were paid an hourly fee by NWREL for collecting and providing this information. Table 2 shows the enrolled number of former students selected per school and the number of former students completing and returning the surveys to NWREL.

TABLE 2

HIGH SCHOOLS PARTICIPATING IN THE
VOCATIONAL EDUCATION STUDY

Name of School	School Enrollment	Surveys Mailed Out	Surveys Returned	Response Rate
Billings West	2207	132	35	27%
Wolf Point	372	57	29	51
Great Falls	1809	132	27	20
Three Forks	163	31	11	35
Beaverhead	544	59	19	32
Hellgate	1795	131	28	21

A check was made to determine how representative the 29 percent response was of the total sample that was drawn. While 48 percent of the high school sample was female, 41 percent of the respondents were female. Thus, females are slightly underrepresented in our data. Similarly, by looking at the response rates of the six high schools, it is apparent from the response rates of the large high schools that they are underrepresented.

Postsecondary Vocational Education Completers

Half of the postsecondary vocational education completers of 1976 were selected from each of the five vocational-technical centers. Of the 1134 former students, 395 were specializing in trade and industrial, 281 in office occupations and 205 in health, with small numbers in agriculture, distributive, technical and other areas. Table 3 shows the number of surveys mailed out and completed by former students at each of the postsecondary centers. The largest return came from the Billings

Vocational Technical Center. The response rates were 30 percent or higher except for Missoula which had only a 22 percent return rate. Postsecondary respondents were accurately represented by sex. Fifty-six percent of the surveys mailed out went to men, while 57 percent of those returned were from men.

TABLE 3

POSTSECONDARY VOC-TECH CENTERS PARTICIPATING IN THE VOCATIONAL EDUCATION STUDY

	1976 Completers	Surveys Mailed Out	Surveys Returned	Return Rate
Billings	308	133	46	35%
Butte	52	63	23	37
Great Falls	332	131	39	30
Helena	200	128	37	30
Missoula	242	132	29	22

Instrument Development

The general steps used in developing draft and final copies of the three survey instruments were discussed earlier under the general plan of the study. The instruments were designed so as to be able to be completed in about 20 minutes and be returned directly back to NWREL. The procedures suggested in Don Dillman's* mail survey techniques book[1] were followed so as to present attractive and clear instruments. Drafts of all three

[1]Dillman, D.A. Mail and Telephone Surveys, The Total Design Method. New York: John Wiley & Sons, 1978.

instruments were reviewed both by the Advisory Council Executive Committee and by other researchers at NWREL and revised copies that took their recommended changes into consideration were made.

The Employer/Supervisor Survey began by asking respondents' opinions about which characteristics of vocational education should be given greater or lesser emphasis in the 1980s. Specific questions were then asked about the employers' perceptions of completers of high school vocational education and separately of postsecondary voc-tech centers. These sections were separated since it was felt some employers may be familiar with completers at one level but not the other level. Most of the characteristics that employers rated were repeated for high school and postsecondary levels so that we could make direct comparisons. Finally, some open-ended questions were included so that employers could add whatever suggestions they had for improving high school or postsecondary vocational education.

The High School Survey and the Postsecondary Survey were constructed so as to contain some identical and some related questions as well as some questions relevant to only one level. For example, the characteristics of their vocational education program that were rated were worded identically on each form. Reasons for entering vocational education training had some common and some unique responses on the two forms. Postsecondary level surveys asked former students whether they had also participated in vocational education at high school and, if so, to rate their level of satisfaction with that training as well as with their postsecondary training. The use of some common questions on both forms allowed for direct comparisons of responses as discussed later in this report.

Reliability of Instruments

In both the high school and the postsecondary surveys, two scales were used. One scale, consisting of eight items, dealt with how satisfied vocational education completers were with their vocational training and the second scale, consisting of 12 items, dealt with how well prepared they felt they were as a result of their vocational training. A Cronbach alpha reliability coefficient was calculated for each scale to determine its reliability. For the eight-item satisfaction scale, the reliability coefficients were .82 for the high school group and .78 for the postsecondary group. On the 12-item preparation scale, the reliability coefficients were .87 for the high school group and .90 for the postsecondary group. Reliability coefficients range from 0 to 1.0 and, thus, the reliability of these scales is quite high considering that they were based on only eight and 12 items respectively.

There were two scales on the employer survey. One dealt with their perceptions of how well prepared high school vocational education completers were as a result of their vocational training and the second scale dealt with the same topic in relation to postsecondary vocational education completers. On these 12-item scales, the alpha reliability coefficients were .94 for high school completers and .97 for postsecondary completers. In summary, the internal reliability of all three survey instruments can be considered to be excellent. That indicates that respondents were giving us consistent information in their responses to the survey.

Data Gathering Procedures

The employer, high school and postsecondary surveys were each mailed in August and September together with a cover letter explaining the importance of the study and of the responses. A stamped, pre-addressed return envelope was included with each survey. Approximately two weeks after the surveys were mailed out, a postcard followup was sent to every person thanking them for having completed and returned the survey or reminding them to do so. The postcard gave Dr. Owens' telephone number and instructed anyone who had not received the initial questionnaire or had misplaced it to call collect to receive another copy. About a dozen calls were received and new copies of the survey were mailed out the day the call was received. The names of companies who returned the surveys were checked off as their completed forms were received in the mail. For the 1976 former students, their names were deliberately not requested on the survey form so that they would feel more honest in their response. However, to help motivate them to return the surveys, a separate sheet was enclosed that explained that NWREL would be drawing a name of a survey completer at random to receive a prize of $100. Almost all of the former students chose to be eligible for this drawing and completed the separate sheet with their name and address on it. Approximately five weeks after the initial mailing, a second cover letter and duplicate survey were mailed to those people who had not completed the first one. This resulted in another short burst of surveys being returned over the next three-week period.

The offer to 1976 former students of a chance to win $100 was obviously attractive, since approximately 90 percent of those returning the survey also completed and returned the separate sheet with their name and address on it. The prize winner was Neidia Sheldon Phinney of Vaughn.

In place of completed surveys, we received letters from about a dozen employers in Montana saying that they did not complete the survey because their company did not hire any vocational education completers and, thus, they did not have a knowledge of the performance of people who received such training.

Responses of those returning the three surveys after the second mailing were examined and found not be be significantly different from those returning the surveys before then. This suggests that those not responding may also not be significantly different in attitude from those who did respond although it is impossible to know.

Procedures used in conducting the employer interviews are discussed in Section IV.

Data Analysis Procedures

After receiving the completed questionnaires, the open-ended responses were coded before having the questionnaires keypunched and verified. Data were then analyzed by computer. The Statistical Package for Social Sciences (SPSS) computer programs were used in the statistical analysis of the survey data.

The frequencies program was used in all three surveys to obtain the percentages of the students and employers who responded to each survey item. The crosstabs program was used to analyze high school questionnaire data by sex, whether they attended school beyond high school and by whether or not their job is related to their vocational training. Similar procedures were used with the postsecondary data.

Categorical data were crosstabbed by CETA and non-CETA students, by age group (under 25 years and above 25 years) and by sex. The t-test program was used to analyze the scaled items in all three surveys. For the high school data, t-tests were run to examine if differences exist between those who are employed in a job related to their high school vocational training and those that are not. The same technique was used to examine differences between CETA and non-CETA postsecondary students. For the employer survey data, the t-test was used to examine if there were differences between the companies or organizations that hired or did not hire high school or postsecondary school vocational completers and on how well prepared they thought students were as a result of their vocational training. Several vocational training outcomes were examined. Analysis of variance was run on scaled variables with the postsecondary data and the Duncan Multiple Range Test was used to examine differences among the five vocational technical centers. The condescriptive program was used to obtain means and other statistics on appropriate variables.

SECTION II

HIGH SCHOOL FINDINGS

Total Group Findings

This section, as well as the two following sections, will be subdivided with the total group findings from the high school survey discussed first followed by a discussion of findings by special categories of students, such as by sex. As was indicated earlier in Table 2, the high school vocational followup survey was completed by 152 former students out of 524 surveyed, thus giving a 29 percent response rate. Responses were received from each of the six high schools in the sample. Fifty-eight percent of the respondents were females and 94 percent of the respondents were Caucasian. Two percent of the respondents were Native American, one percent was Black and one percent was Hispanic. The largest number of respondents took courses in office occupations. Those completing the survey had been in vocational education an average of four semesters. For a complete tabulation of responses to each survey question, please see Appendix A.

High school vocational education completers most frequently entered a vocational training program to learn specific job skills (reported by 57 percent of the respondents) and to explore one or more career fields (37 percent). A number of former students entered a vocational education program because they had an interest in the area although they never intended to get a job in that field (29 percent). This finding is interesting because, prior to this time, many vocational educators have assumed that young people took vocational education to get a job in a particular field. Based on the fact that 29 percent of the respondents

reports never intending to have gotten a job in the field studied, it would not seem appropriate to use for them the criterion often applied to judge vocational education--the percentage of completers who get jobs related to their vocational training. Very few former students (7 percent) reported taking vocational education because they didn't enjoy the academic program.

When asked to rate eight aspects of their high school vocational program on a four-point scale (very satisfied, satisfied, dissatisfied and very dissatisfied), work experience received top rating (by those who took it) followed by the quality of instruction and up-to-dateness of the equipment and materials. Top satisfaction with work experience is consistent with some national studies and a recent survey of high school vocational completers in Oregon and in Idaho. Help in finding a job after program completion was rated as dissatisfied or very dissatisfied by over half the respondents while counseling about careers, opportunities for people to learn about careers occupied mainly by the opposite sex, and available occupational information were rated as dissatisfied or very dissatisfied by at least a quarter of the former students. This was the same pattern noticed in Idaho and suggests areas where improvement could be made. Table 4 displays the ratings on these eight areas. Former students also noted how well they felt prepared as a result of their high school vocational education experience. As shown in Table 5, the highest ratings went to good work habits, their preparation for future training and their overall effectiveness as an employer. Lowest ratings were given to pre-employment skills and to awareness of negative aspects of a job.

TABLE 4

RESPONDENTS' RATINGS OF SATISFACTION WITH VARIOUS ASPECTS OF THEIR HIGH SCHOOL VOCATIONAL EDUCATION
(N=152)

	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	M**	SD
Quality of the instruction. . .	36*	55	7	1	1.74	.65
Occupational information available	20	50	24	1	2.07	.72
Help in finding a job after program completion.	10	30	40	14	2.62	.86
Counseling about careers. . . .	11	45	30	9	2.40	.81
The equipment and materials were up-to-date	37	50	9	3	1.77	.72
Work experience (answer only if you participated in a work experience or placement as part of your vocational program) . .	20	15	3	1	1.66	.77
Opportunities for women to learn about careers occupied mainly by men	11	54	22	7	2.26	.75
Opportunities for men to learn about careers occupied mainly by women	10	47	23	4	2.25	.72

*Numbers represent the percentages of people responding to each item. Most items were based on responses from 152 people.

**Mean (M) represents the average ratings of each item and (SD) stands for the standard deviations or the amount of variation in the ratings for an item.

TABLE 5

RESPONDENTS' RATINGS OF HOW WELL THEY FELT PREPARED AS A RESULT OF THEIR HIGH SCHOOL VOCATIONAL TRAINING (N=152)

	Very Well Prepared	Well Prepared	Not Well Prepared	Very Poorly Prepared	M**	SD
Vocational or technical skills needed for job entry . .	15*	58	22	2	2.12	.67
Work habits (such as showing up on time)	49	43	5	1	1.61	.63
Attitudes (such as desire to learn new things)	43	46	8	1	1.66	.66
Overall effectiveness as an employee.	32	57	7	1	1.75	.61
Ability to look for and obtain a job	24	46	24	3	2.05	.78
Ability to get along with others	40	53	7	1	1.64	.59
Preparation for future training	22	54	19	2	2.01	.71
Ability to cope with a changing technology.	14	57	22	3	2.15	.69
Pre-employment skills (such as preparing a job resume)	24	26	38	11	2.36	.97
Ability to apply basic skills (like reading and math)	40	46	9	1	1.77	.63
Awareness of negative aspects of a job (such as repetition) .	17	45	33	2	2.20	.75
Awareness of an employee's need to be productive on the job . .	28	57	12	1	1.85	.64

*Numbers represent the percentage of people responding to each item.

**Mean (M) represents the average ratings of each item and (SD) stands for the standard deviation.

For those employed in occupations unrelated to their high school vocational training, the two most frequent reasons for the change were that their personal interests changed or that better job opportunities developed in a different job area. Five percent or less changed because they lacked enough training in the area or because of no openings in the area. Thus, those working in nonrelated areas seem to be doing so out of personal preference.

Of those respondents now working, five percent are self-employed and the rest are employed by someone else. Forty percent of those working intend to stay in their present occupation for the next five years and 24 percent plan to change. The former vocational education students are most frequently employed in office occupations, sales, health and in construction fields.

Findings by Special Categories

When the respondents were asked to rate various aspects of their high school vocational education program on a four-point scale (very satisfied, satisfied, dissatisfied and very dissatisfied), opportunities for learning nontraditional careers were rated more negatively by females, as shown in Table 6. The high school women did not think their high school vocational education program gave them enough opportunities to learn about careers occupied mainly by men.

Table 6 also indicates a sex difference between the high school men and women on how they rated their satisfaction with their general

nonvocational high school education. The differences were satistically significant in favor of the men who were more satisfied with the general nonvocational high school education they received.

TABLE 6

RESPONDENTS' RATINGS OF SATISFACTION WITH VARIOUS ASPECTS OF THEIR HIGH SCHOOL VOCATIONAL EDUCATION PROGRAM

	Male (N=58)		Female (N=82)		
	Mean	SD	Mean	SD	p
Opportunities for women to learn about careers occupied mainly by men	2.03	.56	2.41	.83	.002
How satisfied are you with the general (nonvocational) high school education you received	1.86	.73	2.23	.70	.003

Table 7 lays out by sex the mean ratings of how well prepared students were in various job-related areas as a result of their high school vocational training. The ratings were based on a four-point scale (very well prepared, well prepared, not well prepared, very poorly prepared). The ratings of the respondents on work habits, such as showing up on time, showed a statistically significant difference in favor of the females. In another area, the high school women, more than the men, felt they were better prepared as a result of their high school vocational training in pre-employment skills such as preparing a job resume and filling out job application forms. This may be because many females were enrolled in an office occupations cluster that included such content.

N = Number of respondents rating each item
Mean = Average rating on a four-point scale where 1=very satisfied and 4=very dissatisfied
SD = Standard deviation or amount of variation in the ratings
p = Differences between the male and female on this item are statistically significant beyond the .05 level

TABLE 7

RESPONDENTS' RATING OF HOW WELL THEY FELT PREPARED AS A RESULT OF THEIR HIGH SCHOOL VOCATIONAL TRAINING

	Male (N=62)		Female (N=85)		
	Mean	SD	Mean	SD	p
Work habits (such as showing up on time)	1.73	.58	1.45	.65	.007
Pre-employment skills (such as preparing a job resume)	2.70	92	2.10	.93	.001

A significantly higher proportion of women indicated they had been able to apply to their job almost everything they had learned in vocational education (71 percent versus 43 percent for men). A lower proportion of women indicated they would have liked more vocational experience before they started working (44 versus 66 percent) and that they could have gotten their current job without their high school vocational training (43 versus 73 percent).

When analyzing the vocational education courses taken by the respondent's sex, it was found that there were no females enrolled in technical, trades and industry or in industrial arts while only 10 percent of the office occupations enrollees were men. The other vocational areas had better balance of men and women enrolled in them.

N = Number of respondents rating each item
Mean = Average rating on a four-point scale where 1=very well prepared and 4=very poorly prepared
SD = Standard deviation or amount of variation in the ratings
p = Differences between the male and female is statistically significant at the .05 level

Findings by Relationship of High School Training to Current Occupation

A crosstabulation of several items was performed to see if there are differences between those students who were employed in an occupation related (directly or indirectly) to their training and those who were employed in an occupation unrelated to their training. Sixty-four percent of those in related occupations versus 42 percent of those in unrelated occupations said yes, they were able to apply almost everything they learned in their high school training. Those working in occupations related to their high school training were also more likely to report that their high school training was useful to their on-the-job training (91 percent versus 59 percent).

The students who were currently enrolled or those who have been enrolled since graduating from high school were asked to give some information about their current work situation. As expected, students that were not enrolled in school, as opposed to those enrolled, tend to be working full-time (77 to 58 percent), while those enrolled in school tend to work part-time (20 versus 7 percent). Thirty-nine percent of the enrolled students versus 8 percent of those not enrolled said they did not know if they were staying in their present occupation for the next five years.

When analyzed by the vocational education area studied in high school, the proportion of completers working in areas related to their training varies widely. For example, in those vocational areas where there were more than ten completers responding to these questions, 77 percent of those in distributive education, 68 percent of those in agriculture, 67 percent in office occupations and 55 percent in home economics are

employed in a career related to their vocational training. In other vocational areas where there were fewer respondents, the data are interesting but should be considered only suggestive. For example, five out of six respondents who were trained in health occupations are working in that field while only one out of seven in technical, trades and industry are now employed in that field.

When analyzed by high school attended, 60 to 80 percent of the vocational education completers are employed in areas related to their training except for Great Falls High School completers where only 38 percent are working in a career related to their training. When analyzed by respondent's sex, 72 percent of the women versus 56 percent of the men are working in jobs related to their high school training.

SECTION III

POSTSECONDARY FINDINGS

Total Group Findings

The postsecondary vocational education survey was completed by 179 respondents out of the 600 surveyed, thus giving a 30 percent response rate. Response rates ranged from 37 percent at the Butte Vocational-Technical Center to 22 percent at the Missoula Vocational-Technical Center. Billings, Great Falls and Helena Vocational-Technical Centers provided the largest number of respondents for this study. The distribution of respondents by school was shown in Table 3.

Unlike the high school followup, where 59 percent of the respondents were female, only 43 percent of the postsecondary respondents were female. Ninety-four percent of the postsecondary respondents were Caucasian, two percent Native American, one percent Hispanic and one percent Black. Forty-seven percent were under 25 years of age, 34 percent between 25 and 35 years of age and 17 percent over 35 years of age. Thirty-four percent of the respondents reported that they had been enrolled in the trade and industrial area (10 percent in auto mechanics), 21 percent were in health (13 percent in practical nursing), 18 percent in office occupations, 7 percent in agriculture, 5 percent in technology, 1 percent in food services and 1 percent in distributive education.

Although it was assumed that all the respondents had completed their respective postsecondary vocational training programs because our instructions for selecting the names and addresses of respondents called for that, 7 percent of the respondents checked that they had not

completed their program. Data were analyzed separately for this subgroup who reported not having completed their program and also for the 11 percent of the respondents who indicated they were in a Comprehensive Employment Training Act (CETA) program while taking vocational education. Surprisingly, 6 percent of the respondents indicated they didn't know whether or not they were in CETA. Of those participating in this postsecondary study, 38 percent had also taken vocational education courses in high school.

As might be expected, the major reason cited for entering a postsecondary vocational training program was to learn specific job skills (67 percent). Thirty-seven percent enrolled because they wanted a chance to get a good job, 21 percent because they wanted to follow up an area they became interested in while in high school, 12 percent because they had an interest in the area although they never intended to get a job in that field and 11 percent to update their job skills. In some respects it is even more surprising that 12 percent of the postsecondary students as compared with 29 percent of the high school students enrolled in a vocational education field without intending to get a job in that field. This strongly suggests that, for such students, it would be inappropriate to consider vocational education a failure if completers aren't employed in the field they studied. It also suggests we need to probe this reason in more detail in the future to see if such students enter a field seeking it as an avocation, as a possible backup career or for other reasons having nothing to do with work preparation.

Postsecondary completers rated their satisfaction with various aspects of their vocational training programs. Their ratings are shown in Table 8. Highest ratings went to work experience (where this was applicable), quality of instruction and adequacy of the equipment and materials. The lowest rating went to help in job finding after completing vocational education and to counseling about careers. In both cases, 30 percent of the respondents rated the area as dissatisfied or very dissatisfied. As shown in Table 9, work habits and attitudes, technical skills, ability to get along with others and overall effectiveness as an employee were rated highest in terms of areas where completers felt they were best prepared. Pre-employment skills (such as preparing a job resume), awareness of negative aspects of a job and knowledge of future demands for workers in a particular career field were rated lowest. Overall, 95 percent of the respondents were satisfied with the postsecondary vocational training they received and only one percent said they were very dissatisfied.

Thirty-eight percent of the respondents had taken vocational courses while also in high school. Of those taking vocational high school courses, 28 percent felt they were related to their postsecondary training and 49 percent felt they were not related. Of those answering, 45 percent were satisfied with their high school vocational training and 17 percent were dissatisfied with it.

When asked, 78 percent of the postsecondary vocational completers were able to apply their training to their current job. Forty-four percent were employed in occupations directly related to their training, 35 percent were in related fields and 21 percent were in occupations unrelated to their training. Major reasons

TABLE 8

RESPONDENTS' RATINGS OF SATISFACTION WITH VARIOUS ASPECTS OF THEIR POSTSECONDARY VOCATIONAL EDUCATION
(N=179)

	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	M**	SD
Quality of the instruction. . .	45*	51	2	1	1.58	.57
Occupational information available	21	59	17	2	1.99	.67
Help in finding a job after program completion.	20	46	18	12	2.24	.92
Counseling about careers. . . .	9	59	25	5	2.26	.70
The equipment and materials were up-to-date	33	58	7	2	1.77	.65
Work experience (answer only if you participated in a work experience or placement as part of your vocational program) . .	22	19	1	1	1.54	.62
Opportunities for women to learn about careers occupied mainly by men	11	54	9	2	2.02	.59
Opportunities for men to learn about careers occupied mainly by women	9	53	6	2	2.02	.58

*Numbers represent the percentages of people responding to each item.

**Mean (M) represents the average ratings of each item and (SD) represents the standard deviations.

TABLE 9

RESPONDENTS' RATINGS OF HOW WELL THEY FELT PREPARED AS A RESULT OF THEIR POSTSECONDARY VOCATIONAL TRAINING (N=179)

	Very Well Prepared	Well Prepared	Not Well Prepared	Very Poorly Prepared	M**	SD
Vocational or technical skills needed for job entry . .	27*	64	7	1	1.81	.58
Work habits (such as showing up on time).	52	44	3	1	1.51	.59
Attitudes (such as desire to learn new things)	50	45	3	1	1.54	.59
Overall effectiveness as an employee.	32	59	6	1	1.75	.61
Ability to look for and obtain a job	30	50	17	2	1.90	.73
Ability to get along with others	40	58	1	2	1.60	.50
Preparation for future training	22	54	19	2	2.01	.71
Ability to cope with a changing technology.	28	60	9	1	1.83	.63
Knowledge of future demand for workers in this career field. .	22	52	21	12	2.01	.71
Ability to transfer smoothly from one job to another.	22	62	12	1	1.92	.63
Pre-employment skills (such as preparing a job resume'	23	43	27	6	2.16	.85
Awareness of negative aspects of a job (such as repetition). . .	20	53	21	3	2.08	.73
Awareness of an employee's need to be productive on the job . .	32	59	8	1	1.75	.59

*Numbers represent the percentages of people responding to each item.
**Mean (M) represents the average ratings of each item and (SD) stands for the standard deviation.

for switching occupations from those where they received training were that better job opportunities developed in a different job area (15 percent) and because their interests changed (8 percent). Less than 5 percent indicated the reason was that they didn't have enough training or there were no openings in that field. When asked whether they planned to remain in their current occupation for the next five years, 57 percent said yes and 11 percent said no.

The former postsecondary students were asked whether they felt they would be needing additional training over the next three years. Fifty-five percent of the respondents indicated they would be needing further training. Table 10 indicates the areas in which such training was desired. As can be seen, business management and medically-related training were mentioned most often. These were the same two areas most often mentioned by high school vocational completers.

TABLE 10

AREAS IN WHICH POSTSECONDARY VOCATIONAL STUDENTS DESIRE ADDITIONAL TRAINING

Areas	Number of People
Business management and Administration	11
Medically-related training	11
Computer programming	7
Auto mechanics/electronics	4
Special courses in welding	2
Keypunch operator	2
Typing/clerical/shorthand	2
Marketing/sales training*	
Residential wiring	
Personnel administration	
Machinist	
Farm machinery/heavy equipment operator	
Paralegal training	
Accounting	
Refrigeration	

*No number indicates there is only one response.

Findings by Special Categories

Table 11 presents areas where analyses indicate statistical differences depending on the respondent's age, sex and whether the respondent's occupation is related to his or her vocational training.

Postsecondary school respondents, working in an occupation directly or indirectly related to their vocational training, were significantly more prepared for job entry level positions as a result of their vocational training than those working in an unrelated occupation. The respondents working in an occupation related to their training also indicated they were more prepared in ability to cope with a changing technology as a result of their postsecondary education than those working in an occupation different from their vocational training.

An analysis was run of the proportion of postsecondary vocational education completers who are employed in jobs related to the specific programs they studied. Of those 35 vocational areas where there were more than ten completers responding to these questions, 86 percent in practical nursing, 86 percent in secretarial and 59 percent in auto mechanics are working in areas related to their training. In areas where there were between 5 and 10 respondents, all eight in agricultural mechanics, eight out of nine in business data processing, five out of six in dental assistant training, three out of six in combination welding and none out of five in auto body repair are working in jobs related to their training.

Of those completing their postsecondary training, 80 percent are working in related jobs shereas for the 11 not completing their training and answering these questions, only 6 are working in a related job. Of those respondents working full-time, 77 percent are in related jobs while 85 percent of those working part-time are in related jobs. Of the 25 respondents who are self-employed, 88 percent are working in a job related to their training, while 77 percent of those employed by someone else are in a job related to their training.

Table 12 shows differences by age and by sex. The respondents who were 25 years old or under found their vocational training more useful in finding a job than those respondents over 25 years old. The females who responded to this item rated their satisfaction with vocational training more negatively than males in their opportunity to learn about careers occupied mainly by men.

There was no significant difference between CETA and non-CETA respondents on any of the items analyzed.

TABLE 11

RESPONDENTS' RATINGS OF HOW WELL THEY FELT PREPARED AS A RESULT OF THEIR POSTSECONDARY VOCATIONAL EDUCATION TRAINING

(N=174)

	Working in Occupation Related to Training		Working in Occupation Unrelated to Training		
	M*	SD	M	SD	p
Vocational or technical skills needed for job entry	1.76	.57	2.06	.54	.008
Ability to cope with a changing technology	1.78	.64	2.03	.54	.02

*Mean (M) is the average rating on a four-point scale where 1=very satisfied, 2=satisfied, 3=dissatisfied and 4=very dissatisfied.

SD=standard deviation or amount of variation in the ratings and (p) indicates a t-test where differences between the groups were statistically significant.

TABLE 12

RESPONDENTS' RATINGS OF SATISFACTION WITH VARIOUS ASPECTS OF THEIR POSTSECONDARY VOCATIONAL EDUCATION TRAINING

(N=169)

	Age 25 and Under		Age over 25 years		
	M*	SD	M	SD	p
Help in finding a job after program completion	2.07	.84	2.42	.97	.01
	Males		Females		
	M	SD	M	SD	p
Opportunities for women to learn about careers occupied mainly by men	1.93	.52	2.15	.65	.03

*Mean (M) is the average rating on a four-point scale where 1=very satisfied, 2=satisfied, 3=dissatisfied and 4=very dissatisfied.

SD=standard deviation or amount of variation in the ratings and (p) indicates a t-test where differences between the groups were statistically significant.

An analysis of variance showed statistically significant differences among various vocational technical centers in how satisfied the respondents were with various aspects of their vocational training. The ratings on availability of occupational information and help in finding a job after program completion were significantly higher for respondents from Billings, Helena and Missoula Vocational Technical Centers. Counseling was rated significantly lower by respondents from Great Falls than by those from the other four centers.

SECTION IV

EMPLOYER/SUPERVISOR FINDINGS

Total Group Findings

The employers to be surveyed came from two major groups. The first group represented 30 companies recommended by the vocational-technical centers because they employed a substantial number of postsecondary vocational completers. Out of this group, we received a 50 percent return rate. The second group consisted of the random sample of members of the state Chamber of Commerce and of the 20 companies employing the largest number of workers in the state. Of these 326 companies, we received a response rate of 24 percent plus letters from ten companies explaining that they employed no vocational education completers and, therefore, felt unqualified to respond to the survey.

Employers were first asked to indicate the extent to which they felt 15 characteristics of vocational education should be given greater or lesser emphasis in Montana in the 1980s. Areas where employers suggested adding the greatest emphasis were: counseling students about careers (79 percent suggested greater emphasis), making vocational education available to more high school students (73 percent), opportunities to explore various careers before in-depth preparation in one (66 percent), helping students find a job after program completion (64 percent) and making current career information available to students (63 percent). It was suggested that less emphasis be given to providing people with vocational skills they can use in their spare time (28 percent) and providing opportunities for a person to learn about careers occupied mainly by members of the opposite sex (21 percent).

An important aspect of planning vocational education in the eighties expressed by members of the State Advisory Council is insuring a balance between the supply and demand for trained workers. Therefore, some questions were added to the survey regarding the high school and, separately, the postsecondary level. Twenty-five percent of the employers felt the need for more high school vocational education completers while 10 percent felt there were too many. At the postsecondary level, 19 percent felt the need for more vocational education completers and 6 percent felt there were too many. Employers were asked to write in the specific vocational areas where they perceived the shortage or overage. Table 13 summarizes this information. In general, few employers specified particular areas. Areas seen as having the greatest shortages were electronics and skilled secretaries. Areas seen as having an oversupply at the high school level are secretaries with average skills. In general, 33 percent of the employers anticipated a need for more workers in their company over the next three years and 7 percent anticipated a need for fewer workers.

Employers were next asked questions about high school vocational education completers. Forty-two percent of the employers reported hiring such completers over the past three years. Of those companies hiring them, the average number of high school completers employed per year was three, although the number ranged from one to 41 high school vocational completers hired. Employers were next asked to rate how well they felt high school vocational education completers were prepared in 12 areas. Areas rated the highest were: ability to get along with others (36 percent rated high school completers as well or very well prepared),

TABLE 13

PERCEIVED AREAS OF OVERSUPPLY OR SHORTAGE OF TRAINED HIGH SCHOOL OR POSTSECONDARY VOCATIONAL COMPLETERS

	Oversupply		Shortage	
	HS	Post	HS	Post
Arts and graphics	1	0	1	1
Electronics	0	0	14	8
Technicians	0	0	1	1
Craft occupations	0	0	4	3
Business field	0	0	2	1
Management	0	0	0	2
Average skilled secretaries	13	4	0	0
Highly skilled secretaries	0	0	7	9
Medical secretaries/records	0	0	2	1
Accounting	0	0	3	0
Computer programmers/operators	0	0	2	5
Nursing	0	0	2	1
Equipment operator	0	0	2	2
Welders/sheet metalist/refrigerator repair	0	0	4	2
Carpentery	0	0	3	3
Food service	1	0	1	1
Retail sales	0	0	2	2
Data processing	0	0	4	3
Printing press and binding	0	0	1	0
Forestry aid	0	0	1	2
Electrical	0	0	2	1

ability to cope with a changing technology (31 percent), positive attitudes (26 percent), good work habits (26 percent) and technical skills needed for job entry (25 percent). Areas in which students were rated as not well prepared were awareness of an employee's need to be productive on the job (54 percent), pre-employment skills such as preparing a job resume' (51 percent) and ability to look for and obtain a job (46 percent).

If a position were to open in their company, 48 percent of the employers said they would give preference to hiring a person completing the high school vocational education program and 14 percent said they would not.

The same set of questions were repeated, this time dealing with completers of postsecondary vocational education programs. Thirty-six percent of the employers reported that they hire postsecondary completers while 38 percent do not. Companies that employ them average hiring three per year. Most of them come from the vocational technical centers. Employers rated how well they felt postsecondary vocational education completers were prepared in 12 areas. Areas rated the highest were: technical skills needed for job entry (49 percent rated them well or very well prepared), positive attitudes (45 percent), overall effectiveness as an employee (44 percent), good work habits (41 percent) and ability to get along with others (40 percent). Areas where postsecondary completers were rated as poorly prepared were: awareness of negative aspects of a job (34 percent) and awareness of an employee's need to be productive on the job (26 percent). If a position were to open in their company, 51 percent of the employers said they would give preference to hiring a

person completing the postsecondary vocational education program and 10 percent said they would not.

Specific recommendations for improving vocational education at the high school and at the postsecondary level were given by employers and are shown respectively in Tables 14 and 15. At the high school level, the most frequent suggestion was to add courses in business and clerical skills. At the postsecondary level, it was for more "on-the-job" experience.

TABLE 14

EMPLOYER RECOMMENDATIONS FOR IMPROVING
HIGH SCHOOL VOCATIONAL EDUCATION

Offer more courses, i.e., retail sales, basic clerical skills, business skills, economics, reading, writing and spelling (7)

More funding, enlarge program (3)

More work experience (2)

Better awareness of types of jobs and what they entail, i.e., job expectations, responsibilities

Educating public to the necessity of this type of education, more minorities

Better job counselors in high school, career guidance

More emphasis on how to apply for a job

More "business educators"--less "education system" teachers

Better work habits, concentration

Teach positive attitudes towards employers

Let community know what you have to offer

TABLE 15

EMPLOYER RECOMMENDATIONS FOR IMPROVING
POSTSECONDARY VOCATIONAL EDUCATION

More "on-the-job" experience (3)

Better qualified, experienced instructors (2)

More basic skills emphasis (2)

Stay abreast of new technology (2)

More information on job opportunities in specific areas

More funding, new machines, equipment

Educating public to the necessity of this type of education

Better job counselors to insure proper training, related interest and enjoyment

Offer more courses, i.e., foreman and supervisor training, clerical communication skills, business skills, economics, writing and spelling

Better awareness of types of jobs and what they entail, i.e., job expectations, responsibilities

How to apply for a job

Stress the necessity for doing a productive job

Better communication between schools and employers

Emphasize the business aspects of a trade

Four-year journeyman in various craft fields

Findings by Special Categories

Prior studies have indicated different response rates and results depending on whether or not the employers surveyed have vocational education completers working at their company. As reported earlier in this study, the response rate from employers selected because they had employed postsecondary vocational education completers was twice as high as the response rate for a random sample of Montana employers. In the opinion of this writer, information from both audiences is important for a more complete picture of employers' attitudes. Therefore, a subanalysis was run comparing employer ratings of high school vocational education completers by employers whose companies have employed such completers in the past three years versus other employers. Similarly, a comparison was made of the ratings of postsecondary vocational education completers by employers whose companies have or have not employed such completers over the past three years.

When rating how well former high school students were prepared as a result of their vocational training, there were 55 employers whose companies had employed such completers and 29 employers whose companies had not employed such completers. The rest of the employers either left that question unanswered or indicated they were not sure. Using a t-test statistic to compare the ratings of the two groups of employers on the 12 outcome measures, no statistically significant differences were found on any of the items, although employers who had hired vocational education completers rated them somewhat higher on 11 of the 12 outcomes. The only outcome where they were not rated higher was in the completers' ability

to get along with others. This outcome was rated the most positive of the 12 by the employers and the difference between the means by the two groups of employers was very small (2.91 versus 2.83).

At the postsecondary level, there were 50 employers who reported that their companies had hired postsecondary vocational completers and 28 companies that had not. In comparing ratings of postsecondary vocational education completers between employers at companies which hired and those that didn't hire such persons, statistically significant differences[1] were found on each of the 12 items, with the higher rating given at those companies where postsecondary vocational education completers had been hired.

[1] The t-test was statistically significant at the .01 level for all items except the one dealing with "knowledge of future demand for workers in this career field," where the difference was significant at the .04 level.

EMPLOYER INTERVIEWS

Purpose

The purpose of this section of the evaluation is to determine the degree of satisfaction of a cross section of employers in Montana with the performance of postsecondary completers of vocational technical programs.

Population

A total of nine Montana agencies were surveyed. These were selected based upon a combination of factors which included number of employees, geographic location, past hiring of voc-tech completers and type of service or product delivered. Responses were drawn primarily from administrative level managers and online supervisors within each organization. The agencies included in the survey are:

EMPLOYER	TYPE	LOCATION
Frontier Chevrolet	Automobile Dealer	Billings
Empire Steel	Steel Manufacturer	Billings
Montana Power	Utility	Butte
MERDI	Energy Contractor	Butte
St. James Community Hospital	Medical Services	Butte
First National Bank	Banking Services	Great Falls
Helena Medical Clinic	Medical Clinic	Helena
Mountain Bell	Telephone Company	Helena
U. S. Forest Service	Government	Missoula

Procedure

Each employer was interviewed by telephone using a standardized interview guide. The guide contained two parts: a section asking each respondent to rate a number of aspects of postsecondary vocational education programs, and a second section with a number of open-ended questions regarding employer satisfaction with the postsecondary completers they had hired.

One individual from each site was interviewed, with the exception of Frontier Chevrolet, where the general manager and the service manager were both interviewed. A total of ten individuals were interviewed, with each interview lasting about 20 minutes. All of the individuals interviewed indicated some familiarity with at least one of the postsecondary vocational technical programs, with five stating that they were "very familiar," one "moderately familiar," and four "slightly familiar" with at least one of the programs.

Summary of Findings

Each respondent was asked to rate a number of aspects of postsecondary vocational education. The tabulation of these ratings is contained in Tables 16 and 17. As Table 16 shows, when asked about the program itself, the respondents gave vocational education generally high marks, although they appeared rather uninformed about the vocational counseling available at the centers and about opportunities for students of one gender to learn about careers occupied mainly by the other gender.

TABLE 16

POSTSECONDARY RATINGS BY EMPLOYERS

Please rate the following aspects of postsecondary vocational education programs as excellent, good, fair or poor.

	Excellent	Good	Fair	Poor	I don't know
1. Quality of the instruction	1	5	3	0	1
2. Career information available at the school	0	6	1	1	2
3. Help in finding graduates a job	1	4	1	1	3
4. Vocational counseling	1	2	0	0	7
5. The equipment and materials were up-to-date	4	4	0	0	1
6. Work experience (applies only if you supervised a work experience or placement)	2	1	1	0	6
7. Opportunities for women to learn about careers occupied mainly by men	1	3	0	1	5
8. Opportunities for men to learn about careers occupied mainly by women	0	2	0	1	7

TABLE 17

EMPLOYER RATINGS OF POSTSECONDARY VOCATIONAL TRAINING STUDENT OUTCOMES

	Very well Prepared	Well Prepared	Not Well Prepared	Very Poorly Prepared
1. Vocational or technical skills	0	10	0	0
2. Work habits (such as showing up for work on time)	1	9	0	0
3. Attitudes (such as desire to learn new things)	2	8	0	0
4. Overall effectiveness as an employee	2	7	1	0

The respondents were also pleased with the students' preparation for work as a result of their vocational-technical training. No respondents indicated that the students were very poorly prepared and only one respondent indicated that the program completers were not well prepared.

All but two of the employers interviewed have hired postsecondary center program completers in the past three years. The number of program completers hired varied from one or two a year to over thirty a year. Completers who were hired generally participated in the program located in the city in which the employer is located, although some of the larger employers indicated that they attempt to recruit new employees from more distant centers.

Among the nine employers, only one indicated that they offered higher wages to vocational education program completers than to other beginning employees. However, many of the employers who did not offer additional wages stated that this was because company policy required that all beginning employees at a given level be paid the same salary.

Four of the employers indicated that they would give preference to potential employees who have had vocational training and, among the five who indicated that they would not give such preference, only one indicated that it was because of dissatisfaction with the program's completers. The other four employers again mentioned company policies and procedures which prohibited them from giving such preference. All employers indicated that many vocational education program completers do better on the employment tests that are used because they have better skills in the job field and in finding a job.

Each employer was asked if the vocational education program completers they have hired have required more, equal or less training than other new employees. One indicated that the program completers required less training time, while two indicated that more training time was required and the other six felt that the training time required was about equal. It should be pointed out that the two respondents who indicated that more training time was necessary represented very technologically advanced companies where most of the other new employees had other employment experience prior to coming to work for them. The vocational program completers were, therefore, being compared to individuals with prior experience in the field and not to individuals who had not previously held a job.

Finally, each of the employers was asked to list the strengths and weaknesses of the vocational education program completers and to provide a list of recommendations for improvement in the postsecondary vocational education programs. These results are summarized below:

Strengths among completers

- Good job entry skills
- Technically qualified
- Positive attitude toward work and toward themselves
- Good work habits
- Come to work well prepared
- Work well with other employees

Weaknesses among completers

- Trouble with absenteeism, don't understand impact of absences
- Need work in basic skills
- Need longer training period for some technical areas

Recommendations for program improvements

- Need more emphasis on work habits.
- Program should emphasize work with different materials. In many instances the student is trained with one material rather than a variety of materials. For example, welding different gages of steel.
- The centers need closer ties with the larger employers.
- Programs need to be updated to keep up with technological advances.
- More emphasis on basic skills.
- Programs should be developed in computer technology and word processing.
- More work experience programs need to be developed.
- Emphasis on personal appearance is needed.
- Programs should provide more exposure to the world of work and the kinds of jobs that are available.
- There should be stronger efforts to recruit minority and women students to help meet affirmative action goals.
- Efforts should be made to insure adequate funding in the future.

SECTION V

GENERAL PATTERNS

An analysis of the high school, postsecondary and employer findings suggests some common themes which will be discussed in this section while conclusions and recommendations appear in the following section.

An important ingredient in understanding vocational education is to learn why students enter such programs. At both the high school and postsecondary level the most frequently cited reason for joining a vocational training program was to learn specific job skills. However, it was interesting to see that other reasons play an important role. For example, at the high school level, 29 percent of the students joined a vocational program because they had an interest in the area, although they never intended to get a job in that area. Even at the postsecondary level this reason was given by 12 percent of the students. Another important reason for joining at the postsecondary level was to update job skills. This was especially true for the older students.

Both high school and postsecondary vocational education completers were asked to rate various characteristics of their vocational program. Former students at both levels gave highest marks to the quality of the instruction and to the up-to-dateness of the equipment and materials. Although work experience was a part of less than half the students' experiences, those who were in it rated it as very satisfactory. Areas of greatest dissatisfaction were help in finding a job after program completion and career counseling. At the high school level but not at

the postsecondary level there were at least a quarter of the students dissatisfied with opportunities to learn about nontraditional careers.

All three groups--high school, postsecondary and employers--were asked to rate how well vocational education programs prepared their completers. Areas rated high by all groups were: good work habits and attitudes, overall effectiveness as an employee and ability to get along with others. In general, postsecondary completers rated themselves higher than did high school completers. Employers rated postsecondary completers significantly higher on these outcomes than they rated high school completers. Areas rated lowest by these three groups were pre-employment skills and awareness of negative aspects of a job. The area where there appears to be the greatest disparity between student and employer ratings deals with the issue of the employee's need to be productive on the job. Here the employers were much more critical than were the students. For example, 13 percent of the high school completers and 9 percent of the postsecondary completers rated themselves as not well prepared on this outcome. On the other hand, 54 percent of the employers rated high school completers as not well prepared in this area and 26 percent rated postsecondary completers as not well prepared in this area. Overall, 90 percent of the high school and 95 percent of the postsecondary completers were satisfied with the vocational training they received. This compares favorably with the fact that only 77 percent of the high school completers were satisfied with the general (nonvocational) high school education they received.

Other statewide surveys of vocational education have failed to determine the percentage of completers who are self-employed. In this study there were 5 percent of the high school completers and 17 percent of the postsecondary completers who were self-employed. This statistic ought to be an interesting one to watch in the future as the nature of the labor market changes.

Vocational education completers were asked to judge the extent to which their current job matches their vocational training. At the high school level, 22 percent indicated their job was directly related to their training and 43 percent indicated it was indirectly related. At the postsecondary level, 44 percent are in jobs directly related to their training and 35 percent are in jobs that are indirectly related. Given the more detailed nature of postsecondary training and the added maturity of the students this pattern seems to be one we would anticipate.

Thirteen percent of the postsecondary vocational education completers, compared with 18 percent of the high school completers were unemployed at the time of the survey. Most of these people were homemakers or continuing their education. Very few were unemployed because they were inadequately trained or because there were no openings in the area for which they were trained.

Of the high school completers, 43 percent are or were currently enrolled in postsecondary education. Twenty-two percent of those enrolled are taking courses highly related to their high school vocational program and 41 percent are in courses that are somewhat related. Most of those involved in postsecondary education now are in four-year colleges.

Fifty-three percent of the high school completers and 40 percent of the postsecondary completers felt they could have obtained their jobs without their vocational training. However, 68 percent and 78 percent respectively said that course work associated with their training was helpful in performing their jobs.

In other statewide vocational education studies, friends and relatives are the most frequently mentioned source in locating current jobs. In this study the Advisory Council was more interested in finding out which sources were considered the most helpful in locating their current job. As found in other followup studies, friends or relatives were judged as most useful.

SECTION VI

CONCLUSIONS AND RECOMMENDATIONS

The findings in this report reflect a generally favorable picture of the status of vocational education in Montana from the perspective of employers and of high school and postsecondary vocational education completers. For example, 90 percent of the high school and 95 percent of the postsecondary vocational education completers expressed satisfaction with the vocational training they had received. Of those employers responding to the question, 74 percent indicated that, if a position were to open in their company, they would prefer hiring another person from the high school vocational education program and 84 percent indicated this for postsecondary vocational education completers. Seventy-three percent of the employers surveyed recommended that in the 1980s greater emphasis be given to making vocational education available to more high school students and only 1 percent suggested lesser emphasis. Nevertheless, both employers and former vocational education students expressed specific weaknesses they felt need attention. These are treated later in this section.

A question of concern to the Advisory Council and Department of Vocational Education has to do with whether labor supply and demand are balanced. The perceptions of employers and vocational education completers suggest that there is no great inbalance. Of those employers responding, 25 percent expressed a need for more high school vocational education completers and 19 percent for more postsecondary completers. Conversely, 10 percent felt there were too many high school

vocational education completers and 6 percent felt there was an oversupply of postsecondary completers. Relatively few employers listed specific occupations having an over or undersupply. Areas where there was a perceived shortage of trained labor were electronics and skilled secretaries. Secretaries with only average skills were seen to be in oversupply. The fact that very few program completers were unemployed because they were unable to find work in the field for which they were trained supports the conclusions that no major inbalance exists.

The fact that 29 percent of the high school completers and 12 percent of the postsecondary completers indicated one reason for entering a vocational education program was because they "had an interest in the area, although they never intended to get a job in that area." This suggests that vocational education is filling a need that goes beyond preparing an individual for a specific job and that, for such students, it may not be appropriate to use as a measure of program success whether or not they were employed in an area related to their training. It also suggests the need to explore further whether and how such students have intentions of applying the knowledge and skills gained in vocational education. The fact that 32 percent of the high school vocational completers are enrolled in a four year college while only 7 percent are in a vocational-technical school suggests the importance of insuring that vocational education at the high school level remains a good base for either college, other training or direct employment.

When employers were asked on their survey to indicate the extent to which they felt greater or lesser emphasis should be given to certain

characteristics of vocational education in Montana in the 1980s, three top areas where they recommended greater emphasis were in (1) counseling students about careers, (2) having current written career information available for students and (3) helping students find a job after program completion. Career counseling, placement services and availability of occupational information were also a concern to many vocational education completers. Thirty-nine percent of the high school completers and 30 percent of the postsecondary completers expressed dissatisfaction with career counseling. More specifically, 22 percent of the postsecondary completers felt they were inadequately prepared with a knowledge of future demands for workers in a particular career field, 33 percent felt inadequately prepared in pre-employment skills (such as preparing a job resume) and 24 percent felt inadequately aware of negative aspects of a job. The above findings suggest the need for vocational education programs to examine when and where in their program students are to receive career counseling and pre-employment skills and to re-examine the quality of such counseling. Another approach might be to expand opportunities for supervised work experience at employer sites for more students and to build career counseling into such work experience. As one Montana high school competers said "I think we need more learning by doing instead of only classroom learning."

As stated in the previous section, the area where there appears to be the greatest disparity between employer and former student ratings deals with the issue of the employees' need to be productive on the job. Thirteen percent of the former high school completers versus 54 percent of the employers rated them as poorly prepared on this outcome and 9 percent of

the postsecondary completers versus 26 percent of the employers rated postsecondary students as poorly prepared on this point. This obvious discrepancy suggests that the employers and former students view the situation quite differently. Researchers are finding similar discrepancies on this issue in other parts of the country also. The Advisory Council may wish to suggest some seminars be set up where employers and students could discuss their perceptions on what it means for an employee to be productive on the job and why it is important.

About 60 percent of the respondents at both the high school and postsecondary level feel they will need additional training over the next three years. Management and medically related training were mentioned most frequently as areas for desired training. The Advisory Council may wish to explore further the demand of current vocational education students for training in these two areas or recommend them as areas for adult education.

APPENDIX A

MONTANA HIGH SCHOOL VOCATIONAL EDUCATION FOLLOW-UP SURVEY

take a few minutes to complete this survey as soon as you can. Your answers, along other former students' answers, will help us to evaluate the effectiveness of ional education. Tell it like it is. All information is strictly confidential.

School Vocational Training

hat are the main reasons that you decided to enter a high school vocational training rogram? (Circle one or more reasons.)

MY FRIENDS WERE IN THE PROGRAM
I WANTED TO LEARN SPECIFIC JOB SKILLS
I DIDN'T ENJOY THE ACADEMIC PROGRAM
MY PARENTS OR RELATIVES ADVISED ME TO ENROLL
I WANTED TO EXPLORE ONE OR MORE CAREER FIELDS
I HAD AN INTEREST IN THE AREA ALTHOUGH I NEVER INTENDED TO GET A JOB IN THAT FIELD
I WANTED A CHANCE TO GET A GOOD JOB
MY COUNSELOR OR TEACHERS ADVISED ME TO ENROLL
I CAN'T REMEMBER WHY I ENROLLED
OTHER REASONS (Please list) _____

_____

ow satisfied are you with the following aspects of your high school vocational rogram? (Circle one number rating for each aspect. For example, if you were atisfied with the quality of instruction, circle 2. If you were very dissatisfied, ircle 4.)

	Very Satisfied 1	Satisfied 2	Dissatisfied 3	Very Dissatisfied 4	M**	SD
Quality of the instruction. . .	36	55	7	1	1.74	.65
Occupational information available	20	50	24	1	2.07	.72
Help in finding a job after program completion.	10	30	40	14	2.62	.86
Counseling about careers. . . .	11	45	30	9	2.40	.81
The equipment and materials were up-to-date	37	50	9	3	1.77	.72
Work experience (answer only if you participated in a work experience or placement as part of your vocational program) . .	20	15	5	1	1.66	.77

mbers represent the percentages of people responding out of 152 total.
ean (M) represents the average of the ratings of each item and (SD) stands for the tandard deviations.

	Very Satisfied 1	Satisfied 2	Dissatisfied 3	Very Dissatisfied 4	M	SD
Opportunities for women to learn about careers occupied mainly by men	11	54	22	[illegible]	2.26	.75
Opportunities for men to learn about careers occupied mainly by women	10	47	23	4	2.25	.72

3. Generally, how well prepared do you feel you were as a result of your high school vocational training in terms of the areas listed below? (Circle one rating for each area.)

	Very Well Prepared 1	Well Prepared 2	Not Well Prepared 3	Very Poorly Prepared 4	M	SD
Vocational or technical skills needed for job entry . .	15	58	22	2	2.12	.67
Work habits (such as showing up on time).	49	43	5	1	1.57	.63
Attitudes (such as desire to learn new things)	43	46	8	1	1.66	.66
Overall effectiveness as an employee.	32	57	7	1	1.75	.61
Ability to look for and obtain a job	24	46	24	3	2.05	.78
Ability to get along with others	40	53	3	1	1.64	.59
Preparation for future training	22	54	19	2	2.01	.71
Ability to cope with a changing technology.	14	57	22	3	2.15	.69
Pre-employment skills (such as preparing a job resume)	24	26	38	11	2.36	.97
Ability to apply basic skills (like reading and math)	40	46	9	1	1/77	.63
Awareness of negative aspects of a job (such as repetition) .	17	45	33	2	2.20	.75
Awareness of an employee's need to be productive on the job . .	28	57	12	1	1.85	.64

APPENDIX A
(Continued)

	Very Satisfied 1	Satisfied 2	Dissatisfied 3	Very Dissatisfied 4		
. How satisfied are you with the high school vocational training you received?	35	55	6	3	1.78	.70
How satisfied are you with the general (nonvocational) high school education you received?	19	58	18	4	2.07	.73

rrent Job

ease give us some information about your current work situation.

. What is your current work status? (Circle one)

68 - EMPLOYED FULL-TIME (30 hours or more per week)
13 - EMPLOYED PART-TIME (less than 30 hours per week)
18 - UNEMPLOYED (If unemployed, please skip to question 19)

. If you are now working, are you employed by someone else or self-employed? (Circle one)

95* - EMPLOYED BY SOMEONE ELSE
5 - SELF-EMPLOYED

. Is your job related to your high school vocational training? (Circle one)

22* - EMPLOYED IN AN OCCUPATION DIRECTLY RELATED TO MY TRAINING
43 - EMPLOYED IN AN OCCUPATION THAT UTILIZES SOME OF THE SKILLS AND KNOWLEDGE ACQUIRED IN MY TRAINING
35 - EMPLOYED IN AN OCCUPATION UNRELATED TO MY TRAINING

. As a career plan, do you intend to stay in your present occupation for the next five years? (Circle one)

40* - YES
35 - NOT SURE
24 - NO

*Based on the 123 respondents who answered this question.

9. If you are now employed or self-employed, please check the closest occupational area.

_3_ Industrial production (example: machinist, printer, assembler, welder etc.)

_22_ Office occupations (bookkeeper, cashier, clerk, secretary etc.)

_1_ Service occupations (custodian, waitress, firefighter, telephone operator etc.)

_3_ Education (teacher, classroom aide etc.)

_10_ Sales (retail sales, service station attendant, insurance, real estate etc.)

_5_ Construction (carpenter, electrician, plumber, sheet metal worker etc.)

_1_ Transportation (railroad worker, driver, parking attendant etc.)

_2_ Scientific and technical (forester, technician etc.)

_2_ Mechanics and repair (telephone servicer, auto repair etc.)

_6_ Health (dental technician, medical record clerk, therapist, nurse etc.)

_0_ Social service (counselor, recreation worker, social service aid etc.)

_1_ Art and communications (writer, floral designer, photographer etc.)

_22_ If you can't identify into which category your current job falls, please write down the specific job title. _____

_____

10. If you are employed in an occupation unrelated to your high school vocational training, please indicate why? (Circle one or more reasons)

13 - MY INTERESTS CHANGED
5 - NO OPENINGS IN MY AREA OF TRAINING
3 - I DIDN'T HAVE ENOUGH TRAINING IN THIS AREA
11 - THERE WERE OPENINGS IN MY AREA OF TRAINING BUT I COULDN'T LOCATE A JOB
8 - BETTER JOB OPPORTUNITIES DEVELOPED IN A DIFFERENT JOB AREA
OTHER (Please list) _____

_____

11. Has your employer ever provided you with training? (Circle one)

54 - YES
27 - NO

12. If yes, approximately how many hours of training have you received from your employer: _____ (Write in the number of hours)

Mean	SD	Minimum	Maximum
52.80	36.99	1	99

. What is your present average monthly salary before deductions are taken out? (Circle one)

16 - UNDER $500
46 - $500 TO $999
15 - $1,000 TO $1,499
5 - $1,500 TO $1,999
0 - $2,000 TO $2,499
1 - $2,500 OR MORE

	Mean	SD	Min.	Max.
On the average, how many hours a week do you work?	39.82	14.10	4	96

. Approximately how many months have you been at the above salary level? (Circle one)

23 - LESS THAN 3 MONTHS
17 - 3 TO 6 MONTHS
18 - 7 TO 11 MONTHS
9 - 12 TO 18 MONTHS
15 - MORE THAN 18 MONTHS

. Approximately how many months have you been in your present job? (Circle one)

20 - LESS THAN 3 MONTHS
7 - 3 TO 6 MONTHS
9 - 7 TO 12 MONTHS
13 - 1 TO 2 YEARS
33 - MORE THAN 2 YEARS

. Overall, how satisfied are you with your current job? (Circle one)

26 - VERY SATISFIED
37 - SATISFIED
13 - DISSATISFIED
4 - VERY DISSATISFIED

. What source was of most help in locating your current job? (Circle one)

41 - FRIEND OR RELATIVE
3 - NEWSPAPER
5 - EMPLOYMENT CENTER
3 - VOCATIONAL SCHOOL TEACHERS
1 - VOCATIONAL COUNSELORS
1 - TV/RADIO ADS
25 - OTHER (Please list) _____

_____

19. Based on your current job or future work over the next three years, do you feel you need additional training? (Circle one)

60- YES
36- NO
IF YES, WHAT TYPE OF TRAINING? See Table X

---

20. Decide whether each of the following statements is true for you. (Circle 1 for YES and 2 for NO)

		YES	NO
1	I have been able to apply almost everything I learned in my high school training.	59	40
2.	I would have liked more vocational experience before I started work	51	45
3.	I received training different from the way it is done on the job.	34	60
4.	I found my high school training useful in on-the-job training program(s).	74	18
5.	I was trained with tools or equipment that are no longer used in this type of work.	12	84
6.	I could have gotten my job without the training.	53	42
7.	I took course work associated with my training which was not helpful in performing my job	24	68
8.	I would have liked more information about what was expected in the job beyond skills training	47	47
9.	I consider my high school vocational education training a wise choice	90	8
10.	I would have liked other types of experience or information to be included in the training (Describe, if yes)	44	50

---

21. How many jobs, including your present one, have you held since completing your high school vocational education program? (Circle one)

20 - ONE
26 - TWO
21 - THREE
15 - FOUR
12 - FIVE OR MORE

22. If you are currently unemployed, please indicate the response that best describes your current status. (Circle one or more reasons)

3 - NOT INTERESTED IN SEEKING PAID EMPLOYMENT
1 - NO OPENINGS IN MY AREA OF TRAINING
3 - I HAVE CHANGED CAREER INTERESTS
1 - I AM NOW DISABLED
7 - I AM CONTINUING MY EDUCATION
1 - THERE ARE OPENINGS FOR WHICH I AM QUALIFIED BUT NO ONE HAS HIRED ME
10 - I AM A HOMEMAKER OR HAVE CHILDREN TO CARE FOR
1 - OTHER (Please specify) _____

_____

23. For approximately how long have you been unemployed? (Circle one)

4 - LESS THAN 3 MONTHS
3 - 3 TO 6 MONTHS
3 - 6 TO 11 MONTHS
7 - 1 TO 2 YEARS
3 - MORE THAN 2 YEARS

Education Since High School

24. Are you currently enrolled in school or have you been enrolled in the last year? (Circle one)

43 - YES (if so go to the next question)
55 - NO (if not skip to question 25)

25. How related to your high school vocational program is your present or recent educational program? (Circle one)

22* - HIGHLY RELATED (advanced courses in the same area)
41 - SOMEWHAT RELATED (am using some ideas learned in high school)
37 - NOT RELATED (am studying completely different areas)

26. If you are enrolled in postsecondary education not related to your high school vocational program, please indicate why? (Circle one)

9 - MY INTERESTS CHANGED
1 - THERE ARE NO POSTSECONDARY VOCATIONAL EDUCATIONAL PROGRAMS
10 - AVAILABLE NEAR WHERE I LIVE
10 - I FELT A DIFFERENT TYPE OF POSTSECONDARY PROGRAM WOULD BE MORE USEFUL TO ME
4 - OTHER (Please list) _____

_____

*Percentage based on the 81 people answering this question.

27. What type of postsecondary program are you involved in? (Please circle)

32 - FOUR-YEAR COLLEGE
1 - COMMUNITY COLLEGE
7 - VOCATIONAL TECHNICAL SCHOOL
1 - TRAINING IN A PRIVATE COMPANY
1 - CORRESPONDENCE SCHOOL
5 - OTHER (Please list) _____

_____

Background Information

For statistical purposes we would like to know some information about you. The information will allow us to analyze the data by different groups.

28. At which high school did you take vocational education classes? (Circle number representing high school you attended)

13 - BEAVERHEAD COUNTY HIGH SCHOOL
23 - BILLINGS WEST HIGH SCHOOL (Career Center)
18 - GREAT FALLS HIGH SCHOOL
18 - HELLGATE HIGH SCHOOL
7 - THREE FORKS HIGH SCHOOL
19 - WOLF POINT HIGH SCHOOL

29. Sex: 1 MALE 41 2 FEMALE 58 (Circle one)

30. Ethnic background (Circle one)

0 - ASIAN
1 - BLACK
94 - WHITE
1 - HISPANIC (Spanish surname)
2 - AMERICAN INDIAN/NATIVE AMERICAN
1 - OTHER _____

31. What vocational education course(s) did you take in high school? (Circle one or more)

14 - AGRICULTURE
11 - DISTRIBUTIVE EDUCATION
4 - HEALTH OCCUPATIONS
45 - OFFICE OCCUPATIONS
9 - HOME ECONOMICS
7 - TECHNICAL, TRADES AND INDUSTRY
3 - INDUSTRIAL ARTS
4 - OTHER AREAS (Please list) _____

_____

32. For how many semesters did you study vocational education courses in high school? _____ (Write in the number of semesters)

Mean	SD	Minimum	Maximum
4.15	2.16	1	9

Is there anything else you would like to tell us about how you feel regarding vocational education in Montana? Have we left out any important concerns of yours? If so, please use the space below to make any comments you wish.

APPENDIX B

MONTANA POSTSECONDARY VOCATIONAL EDUCATION FOLLOW-UP SURVEY

Please take a few minutes to complete this survey as soon as you can. Your answers, along with other former students' answers, will help us to evaluate the effectiveness of vocational education. Tell it like it is. All information is strictly confidential.

Postsecondary Vocational Training

1. What are the main reasons that you decided to enter a postsecondary vocational training program? (Circle one or more reasons.)

*6 MY FRIENDS WERE IN THE PROGRAM
67 I WANTED TO LEARN SPECIFIC JOB SKILLS
21 I WANTED TO FOLLOW UP AN AREA I BECAME INTERESTED IN WHILE IN HIGH SCHOOL
7 MY PARENTS OR RELATIVES ADVISED ME TO ENROLL
12 I HAD AN INTEREST IN THE AREA ALTHOUGH I NEVER INTENDED TO GET A JOB IN THAT FIELD
37 I WANTED A CHANCE TO GET A GOOD JOB
1 MY COUNSELOR OR TEACHERS ADVISED ME TO ENROLL
1 I CAN'T REMEMBER WHY I ENROLLED
11 TO UPDATE MY JOB SKILLS
1 OTHER REASONS (Please list)_____

_____

2. How satisfied are you with the following aspects of your postsecondary vocational program? (Circle one number rating for each aspect. For example, if you were satisfied with the quality of instruction, circle 2. If you were very dissatisfied, circle 4.)

	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	M**	SD
Quality of the instruction. . .	45	51	2	1	1.58	.57
Occupational information available	21	59	17	2	1.99	.67
Help in finding a job after program completion.	20	46	18	12	2.24	.92
Counseling about careers. . . .	9	59	25	5	2.26	.70
The equipment and materials were up-to-date	33	58	7	2	1.77	.65
Work experience (answer only if you participated in a work experience or placement as part of your vocational program) . .	22	19	1	1	1.54	.62

*Numbers represent the percentages of people responding out of 179 total.
**Mean (M) stands for the average of the rating and SD represents the standard deviation.

APPENDIX B
(Continued)

	Very Satisfied 1	Satisfied 2	Dissatisfied 3	Very Dissatisfied 4	M	SD
Opportunities for women to learn about careers occupied mainly by men	11	54	9	2	2.02	.59
Opportunities for men to learn about careers occupied mainly by women	9	53	6	2	2.02	.58

3. Generally, how well prepared do you feel you were as a result of your postsecondary vocational training in terms of the areas listed below? (Circle one rating for each area.)

	Very Well Prepared 1	Well Prepared 2	Not Well Prepared 3	Very Poorly Prepared 4	M	SD
Vocational or technical skills needed for job entry . .	27	64	7	1	1.81	.58
Work habits (such as showing up on time).	52	44	3	1	1.51	.59
Attitudes (such as desire to learn new things)	50	45	3	1	1.54	.59
Overall effectiveness as an employee.	32	59	6	1	1.75	.61
Ability to look for and obtain a job	30	50	17	2	1.90	.73
Ability to get along with others	40	58	1	2	1.60	.50
Ability to cope with a changing technology.	28	60	9	1	1.83	.63
Knowledge of future demand for workers in this career field. .	22	52	21	1	2.01	.71
Ability to transfer smoothly from one job to another.	22	62	12	1	1.92	.63
Pre-employment skills (such as preparing a job resume')	23	43	27	6	2.16	.85
Awareness of negative aspects of a job (such as repetition) . . .	20	53	21	3	2.08	.73
Awareness of an employee's need to be productive on the job. . .	32	59	8	1	1.75	.59

APPENDIX B
(Continued)

	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	M	SD
4. How satisfied are you with the postsecondary vocational training you received?.	45	50	4	1	1.61	.62

5. Were you involved in a CETA (Comprehensive Employment Training Act) program while taking vocational education? (Circle one)

11 - YES
83 - NO
6 - DON'T KNOW

6a. Do you feel there is adequate coordination between vocational education programs at the high school level and those at the postsecondary level? (Circle one)

31 - YES
28 - NO
40 - DON'T KNOW

b. What specific recommendations do you have for improving the vocational education program at the postsecondary school you attended? _____

_____

_____

7a. While in high school were you enrolled in vocational educational courses? (Circle one)

38 - YES
60 - NO

b. Were these high school courses related to your postsecondary training program? (Circle one)

28*- YES
49 - NO

c. How satisfied are you with the vocational training you received in high school? (Circle one)

9*- VERY SATISFIED
36 - SATISFIED
10 - DISSATISFIED
7 - VERY DISSATISFIED

*Based on those who were in high school vocational education

APPENDIX B
(Continued)

Current Job

Please give us some information about your current work situation.

8. What is your current work status? (Circle one)

80*- EMPLOYED FULL-TIME (30 hours or more per week)
7 - EMPLOYED PART-TIME (less than 30 hours)
13 - UNEMPLOYED (If unemployed, please skip to question 22)

9. If you are now working, are you employed by someone else or self-employed? (Circle one)

83*- EMPLOYED BY SOMEONE ELSE
17 - SELF-EMPLOYED

10. If you are now employed or self-employed, please check the closest occupational area.

2 Industrial production (example: machinist, printer, assembler, welder etc.)

14 Office occupations (bookkeeper, cashier, clerk, secretary etc.)

5 Service occupations (custodian, waitress, firefighter, telephone operator etc.)

1 Education (teacher, classroom aide etc.)

5 Sales (retail sales, service station attendant, insurance, real estate etc.)

6 Construction (carpenter, electrician, plumber, sheet metal worker etc.)

3 Transportation (railroad worker, driver, parking attendant etc.)

5 Scientific and technical (forester, technician etc.)

6 Mechanics and repair (telephone servicer, auto repair etc.)

12 Health (dental technician, medical record clerk, therapist, nurse etc.)

1 Social service (counselor, recreation worker, social service aid etc.)

0 Art and communications (writer, floral designer, photographer etc.)

21 If you can't identify into which category your current job falls, please write down the specific job title. _____

11. Is your job related to your postsecondary vocational training? (Circle one)

44*- EMPLOYED IN AN OCCUPATION DIRECTLY RELATED TO MY TRAINING
35 - EMPLOYED IN AN OCCUPATION THAT UTILIZES SOME OF THE SKILLS AND KNOWLEDGE ACQUIRED IN MY TRAINING
21 - EMPLOYED IN AN OCCUPATION UNRELATED TO MY TRAINING

*Percentage based on the 150 respondents who completed this item.

. As a career plan, do you intend to stay in your present occupation for the next five years? (Circle one)

57 - YES
21 - NOT SURE
11 - NO

. If you are employed in an occupation unrelated to your postsecondary vocational training, please indicate why. (Circle one or more reasons)

8 - MY INTERESTS CHANGED
2 - NO OPENINGS IN MY AREA OF TRAINING
3 - I DIDN'T HAVE ENOUGH TRAINING IN THIS AREA
1 - THERE WERE OPENINGS IN MY AREA OF TRAINING BUT I COULDN'T LOCATE A JOB
15 - BETTER JOB OPPORTUNITIES DEVELOPED IN A DIFFERENT JOB AREA
12 - OTHER (Please list) _____

_____

. Has your employer ever provided you with training? (Circle one)

54 - YES
30 - NO

. If yes, approximately how many hours of training have you received from your employer: _____ (Write in the number of hours)

Mean	SD	Minimum	Maximum
48.95	33.41	1	99

. What is your present average monthly salary before deductions are taken out? (Circle one)

7 - UNDER $500
43 - $500 TO $999
18 - $1,000 TO $1,499
12 - $1,500 TO $1,999
5 - $2,000 TO $2,499
2 - $2,500 OR MORE

. On the average, how many hours a week do you work? (Write in the number of hours) _____

Mean	SD	Minimum	Maximum
42.5.	11.57	12	85

. Approximately how many months have you been at the above salary level? (Circle one)

12 - LESS THAN 3 MONTHS
18 - 3 TO 6 MONTHS
16 - 7 TO 11 MONTHS
13 - 12 TO 18 MONTHS
28 - MORE THAN 18 MONTHS

19. Approximately how many months have you been in your present job? (Circle one)

8 - LESS THAN 3 MONTHS
7 - 3 TO 6 MONTHS
12 - 7 TO 12 MONTHS
18 - 1 TO 2 YEARS
43 - MORE THAN 2 YEARS

20. Overall, how satisfied are you with your current job? (Circle one)

36 - VERY SATISFIED
44 - SATISFIED
6 - DISSATISFIED
1 - VERY DISSATISFIED

21. What source was of most help in locating your current job? (Circle one)

30 - FRIEND OR RELATIVE
7 - NEWSPAPER
11 - EMPLOYMENT CENTER
6 - VOCATIONAL SCHOOL TEACHERS
0 - VOCATIONAL COUNSELORS
0 - TV/RADIO ADS
30 - OTHER (Please list) _____

_____

22. Based on your current job or future work over the next three years, do you feel you need additional training? (Circle one)

55 - YES
43 - NO
IF YES, WHAT TYPE OF TRAINING? See Table 10

23. Decide whether each of the following statements is true for you. (Circle 1 for YES and 2 for NO)

		YES	NO
1	I have been able to apply almost everything I learned in my vocational-technical training.	77	22
2.	I was trained with tools or equipment that are no longer used in this type of work.	11	85
3.	I could have gotten my job without the training.	40	58
4.	I took course work associated with my training which was not helpful in performing my job	18	78
5.	I would have liked more information about what was expected in the job beyond skills training	34	62

APPENDIX B
(Continued)

	YES	NO
6. I consider my postsecondary vocational education training a wise choice	93	5
7. I received training different from the way it is done on the job.	23	70
8. I would have liked other types of experience or information to be included in the training (Describe, if yes)	37	54

How many jobs, including your present one, have you held since completing your vocational education program? (Circle one)

28 - ONE
30 - TWO
20 - THREE
10 - FOUR
8 - FIVE OR MORE

If you are currently unemployed, please indicate the response that best describes your current status. (Circle one or more reasons)

NOT INTERESTED IN SEEKING PAID EMPLOYMENT
NO OPENINGS IN MY AREA OF TRAINING
I HAVE CHANGED CAREER INTERESTS
I AM NOW DISABLED
I AM CONTINUING MY EDUCATION
THERE ARE OPENINGS FOR WHICH I AM QUALIFIED BUT NO ONE HAS HIRED ME
I AM A HOMEMAKER OR HAVE CHILDREN TO CARE FOR
OTHER (Please specify) _____

For approximately how long have you been unemployed? (Circle one)

31*- LESS THAN 3 MONTHS
13 - 3 TO 6 MONTHS
6 - 6 TO 11 MONTHS
6 - 1 TO 2 YEARS
44 - MORE THAN 2 YEARS

ground Information

statistical purposes we would like to know some information about you. information will allow us to analyze the data by different groups.

At which vocational-technical school did you take vocational education ses? (Circle number representing school you attended)

26 - BILLINGS VOCATIONAL TECHNICAL CENTER
13 - BUTTE VOCATIONAL TECHNICAL CENTER
22 - GREAT FALLS VOCATIONAL TECHNICAL CENTER
16 - MISSOULA TECHNICAL CENTER
21 - HELENA VOCATIONAL TECHNICAL CENTER

centage is based on the 32 respondents who completed this item.

28. Sex: 1 MALE 56 2 FEMALE 42 (Circle one)

29. Ethnic background (Circle one)

0 - ASIAN
1 - BLACK
95 - WHITE
1 - HISPANIC (Spanish surname)
2 - AMERICAN INDIAN/NATIVE AMERICAN
1 - OTHER _____

30. In what postsecondary vocational education program were you enrolled? (Circle the corresponding number)

AGRICULTURE

5 - AGRICULTURAL MECHANICS
2 - FORESTRY TECHNICIAN
0 - FARM AND RANCH MANAGEMENT

DISTRIBUTIVE

1 - MID-MANAGEMENT

HEALTH

4 - DENTAL ASSISTANT
2 - NURSE ASSISTANT (AIDE)
2 - OPERATING ROOM TECHNICIAN
13 - PRACTICAL NURSING
0 - RESPIRATORY THERAPY TECHNICIAN

HOME ECONOMICS

1 - FOOD SERVICES

OFFICE

3 - ACCOUNTING/BOOKKEEPING
7 - BUSINESS DATA PROCESSING
0 - EDUCATIONAL ASSISTANT
8 - SECRETARIAL

3 - OTHER AREA (Please list) _____

TECHNICAL

0 - CIVIL ENGINEERING TECHNOLOGY
2 - ELECTRICAL TECHNOLOGY
1 - ELECTRO-MECHANICAL TECHNOLOGY
2 - INDUSTRIAL ELECTRONICS TECHNOLOGY

TRADE AND INDUSTRY

2 - AIR CONDITIONING & REFRIGERATION
1 - AIRCRAFT MECHANICS
3 - AUTO BODY REPAIR
10 - AUTO MECHANICS
2 - BUILDING TRADES
4 - COMBINATION WELDING
3 - DIESEL (ENGINE) MECHANICS
1 - DRAFTING
0 - HEAVY EQUIPMENT MAINTENANCE
2 - HEAVY EQUIPMENT OPERATIONS
1 - MACHINE SHOP
0 - MULTI-OCCUPATIONS
2 - RADIO & TELEVISION REPAIR
2 - SMALL ENGINE REPAIR
1 - TRUCK & COACH MECHANICS
0 - TRUCK DRIVING
0 - WATCHMAKING & JEWELRY REPAIR

31. Did you complete the postsecondary vocational training program? (Circle one)

93 - YES
7 - NO

32. Wha
one

33. Ho

. What vocational education course(s) did you take in high school? (Circle one or more)

9 - AGRICULTURE
6 - DISTRIBUTIVE EDUCATION
2 - HEALTH OCCUPATIONS
11 - OFFICE OCCUPATIONS
6 - HOME ECONOMICS
8 - TECHNICAL, TRADES AND INDUSTRY
7 - INDUSTRIAL ARTS
13 - OTHER AREAS (Please list) _____

_____

. How old are you now? (Circle one)

47 - UNDER 25 YEARS OLD
34 - BETWEEN 25 AND 35
17 - OVER 35 YEARS OLD

Is there anything else you would like to tell us about how you feel regarding vocational education in Montana? Have we left out any important concerns of yours? If so, please use the space below to make any comments you wish.

APPENDIX C

MONTANA VOCATIONAL EDUCATION
EMPLOYER/SUPERVISOR SURVEY

Purpose: This survey is intended to obtain your opinions about vocational education provided in the high schools and public postsecondary vocational-technical schools of Montana. Your comments will help us identify areas of strength and weakness and improve vocational education for future students. Information you supply will be kept strictly confidential and will not be identified with you or your company. We will combine survey data as the basis for the report which will be used to help recommend improvements in Montana's vocational education offerings.

Name of your company or organization _____

Address and Zip Code _____

1. How important do you feel the following characteristics are for quality vocational education programs in Montana in the 1980s? (Please circle one rating for each characteristic indicating the extent to which you feel each characteristic should be given greater or lesser emphasis.)

	Much Greater Emphasis 1	Somewhat Greater Emphasis 2	About the Same Emphasis 3	Somewhat Less Emphasis 4	Much Less Emphasis 5	M**	SD
Counseling students about careers.	41*	38	13	1	0	1.71	.73
Helping students find a job after program completion	28	36	27	1	1	2.05	.85
Having current written career information available.	27	36	29	1	0	2.04	.80
Supervised work experiences at employer sites.	21	35	30	5	1	2/25	.92
Opportunities to explore various careers before in-depth preparation in one	23	43	25	4	0	2.09	.81
Opportunities for a person to learn about careers occupied mainly by members of the opposite sex	10	18	44	14	7	2.88	1.03

*Numbaers represent the percentages of people responding out of 139 total.
**Mean (M) stands for the average rating of each item and (SD) represents the standard deviation.

APPENDIX C
(Continued)

	Much Greater Emphasis 1	Somewhat Greater Emphasis 2	About the Same Emphasis 3	Somewhat Less Emphasis 4	Much Less Emphasis 5	M	SD
Improving the employability of minorities.	11	21	42	14	5	2.81	1.02
Improving the employability of handicapped people . . .	12	39	37	4	1	2.37	.79
Improving the employability of the economically disadvantaged . .	12	28	42	7	4	2.61	.94
Providing adults with opportunities for career redirection.	15	41	34	3	0	2.26	.77
Providing adults with training to upgrade their existing job skills. . .	18	39	32	4	0	2.25	.82
Cooperating with the private sector in jointly sponsoring vocation training	19	38	31	2	1	2.20	.83
Providing people with vocational skills they can use in their spare time outside of their work day	5	18	41	14	14	3.16	1.08
Awarding college transfer credit for post-secondary vocational education . .	19	33	33	6	1	2.30	.90
Making vocational education available to more high school students . .	35	38	19	1	0	1.84	.77

An important aspect of planning vocational education in the 80s is to help insure a balance between the supply and demand for trained workers. The following questions explore your perceptions of this balance.

2a Are there enough HIGH SCHOOL vocational education completers available right now to meet the labor market needs of your company or organization? (Circle one)

25 - NEED MORE PEOPLE
53 - ABOUT RIGHT
10 - TOO MANY PEOPLE

b In what areas, if any, do you feel there is an oversupply of trained high school vocational personnel?_____

_____

c In what areas, if any, do you feel there is a shortage of trained high school vocational personnel?_____

_____

3a Are there enough POSTSECONDARY vocational education completers being trained now to meet your company's labor demands? (Circle one)

19 - NEED MORE PEOPLE
37 - ABOUT RIGHT
6 - TOO MANY PEOPLE

b In what areas, if any, do you feel there is an oversupply of trained postsecondary vocational personnel? _____

_____

_____

c In what areas, if any, do you feel there is a shortage of trained postsecondary vocational personnel?_____

_____

_____

4. Over the next three years do you anticipate any changes in your company's labor demands? (Circle one)

33 - NEED MORE WORKERS
55 - ABOUT SAME NUMBER
7 - NEED LESS WORKERS

The next set of questions deal with people who have completed high school vocational education.

5a Has your company or organization hired any young people who completed high school vocational education programs over the past three years? (Circle one)

42 - YES
32 - NO
21 - I DON'T KNOW

b If yes, approximately how many per year? _____

APPENDIX C
(Continued)

6. Generally, how well prepared do you feel students are as a result of their high school vocational training in terms of the following outcomes? (Circle the number of your answer)

	Very well Prepared 1	Well Prepared 2	Not Well Prepared 3	Very Poorly Prepared 4	I can't Judge This 5	MS	SD
Vocation or technical skills needed for job entry.	0	25	30	7	15	3.15	1.09
Work habits (such as showing up for work on time)	1	25	25	15	10	3.10	1.06
Attitudes (such as desire to learn new things) . .	2	24	29	8	13	3.08	1.11
Overall effectiveness as an employee	0	24	34	7	12	3.08	1.01
Ability to look for and obtain a job	1	18	32	14	11	3.21	1.01
Ability to get along with others.	1	35	19	4	17	2.98	1.21
Preparation for future training	1	25	30	7	17	3.20	1.16
Ability to cope with a changing technology. . .	1	30	22	7	16	3.09	1.17
Pre-employment skills (such as preparing a job resume).	1	12	30	21	12	3.42	.98
Ability to apply basic skills (like reading and math).	0	20	29	17	11	3.24	1.00
Awareness of negative aspects of a job (such as repetition) . .	0	15	37	12	12	3.27	.95
Awareness of an employee's need to be productive on the job. .	1	10	29	25	9	3.44	.92

7. In comparison with young people who have not had high school vocational training, what starting salary do new employees with high school vocational training generally receive? (Circle one)

17 - A HIGHER SALARY
59 - ABOUT THE SAME SALARY
2 - A LOWER SALARY

8. In comparison with young people who have not had high school vocational training, how quickly do vocational education completers advance to higher paying positions? (Circle one)

32 - MORE RAPIDLY
38 - ABOUT THE SAME
4 - LESS RAPIDLY

9. Considering the experience you have had with these program completers, if a position were to open in your company, would you prefer hiring another person from the high school vocational education program? (Circle one)

48 - YES
14 - NO
WHY?_____

The following questions deal with people who have completed a postsecondary vocational education program (i.e. usually a two year program after high school taken at a Vocational-Technical Center, Community College or Northern Montana College).

10a Has your company or organization hired any completers of the postsecondary vocational education programs over the past three years? (Circle one)

36 - YES
38 - NO
17 - I DON'T KNOW

10b If yes, approximately how many per year? (Write in the number) ___

Mean	SD	Minimum	Maximum
3.22	5.06	1	30

10c If yes, where did they receive their postsecondary vocational education training? (Circle one or more)

66* - VOCATIONAL-TECHNICAL CENTERS (in Billings, Butte, Great Falls, Helena or Missoula)
10 - COMMUNITY COLLEGES (AT Dawson, Flathead Valley or Miles)
13 - NORTHERN MONTANA COLLEGE
6 - I DON'T KNOW

*Based on the 62 employers who answered this question.

11. Generally, how well prepared do you feel students are as a result of their postsecondary vocational training in terms of the following outcomes? (Circle the number of your answer

	Very well Prepared 1	Well Prepared 2	Not Well Prepared 3	Very Poorly Prepared 4	I can't Judge This 5	MS	SD
Vocation or technical skills needed for job entry.	5	44	8	1	16	2.72	1.29
Work habits (such as showing up for work on time)	3	38	13	1	19	2.93	1.31
Attitudes (such as desire to learn new things) . .	4	41	8	3	18.2	2.85	1.34
Overall effectiveness as an employee	3	41	10	2	18	2.88	1.31
Ability to look for and obtain a job	1	35	17	4	15	2.96	1.21
Ability to get along with others.	1	39	13	1	20	3.01	1.30
Ability to cope with a changing technology. . .	2	36	14	2	19	2.99	1.29
Knowledge of future demand for workers in this career field. . . .	3	25	28	1	25	3.28	1.30
Ability to transfer smoothly from one job to another	3	31	19	3	22	3.13	1.34
Pre-employment skills (such as preparing a job resume).	3	28	19	4	20	3.15	1 29
Awareness of negative aspects of a job (such as repetition) . .	1	18	30	4	21	3.37	1.17
Awareness of an employee's need to be productive on the job. .	2	26	19	7	18	3.17	1.25

12. In comparison with people who have not had postsecondary vocational training, what starting salary do new employees with postsecondary training generally receive? (Circle one)

29 - A HIGHER SALARY
35 - ABOUT THE SAME SALARY
1 - A LOWER SALARY

13. In comparison with people who have not had postsecondary vocational training, how quickly do vocational education completers advance to higher paying positions? (Circle one)

39 - MORE RAPIDLY
26 - ABOUT THE SAME
2 - LESS RAPIDLY

14. Considering the experience you have had with these program completers, if a position were to open in your company, would you prefer hiring another completer of the postsecondary vocational education program? (Circle one)

51 - YES
10 - NO
WHY?_____

_____

Finally we would like to get your suggestions for improving vocational education at the high school or postsecondary level.

15. What specific recommendations do you have for improving <u>high school</u> vocational education? _____

_____

_____

16. What specific recommendations do you have for improving <u>postsecondary</u> vocational education?_____

_____

_____